

Abstract of the Disclosure

Boride thin films of conducting and superconducting materials are formed on silicon by a process which combines physical vapor deposition with chemical vapor deposition. Embodiments include forming boride films, such as magnesium diboride, on silicon substrates by physically generating magnesium vapor in a deposition chamber and introducing a boron containing precursor into the chamber which combines with the magnesium vapor to form a thin boride film on the silicon substrates.